1

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2

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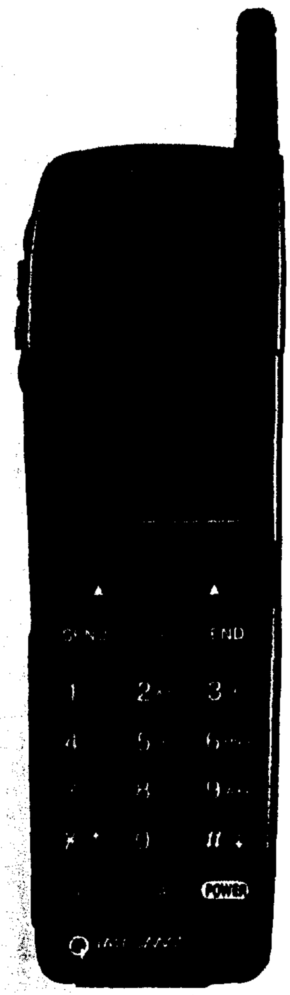

3

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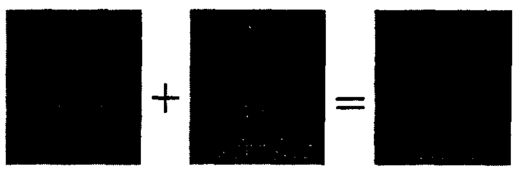

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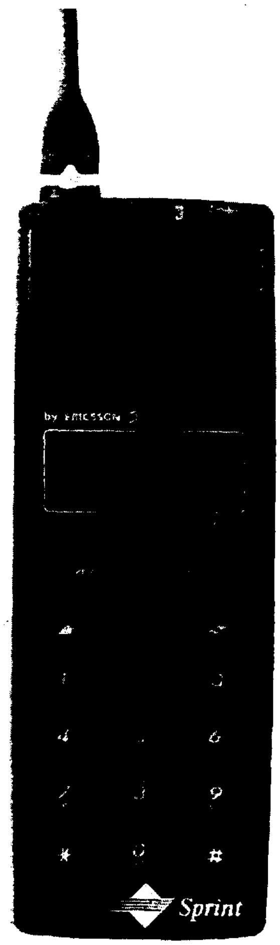

Digital phones at most stores. Ericsson rebate and trade-in offer good through 7/6/97.

4

Trends

PAGING DECLINES TO COOPERATE WITH "DEATH BY PCS" SCENARIO

Paging carriers have labored for some time now under the widespread impression that their industry is teetering on the brink of extinction and will be finished off by broadband PCS. PCS providers, it was theorized, would bundle paging functionality with voice and other advanced services in an almost equally convenient package and for not much more money. In television spots, **American Personal Communications** (APC), for example, called its handsets "a phone, answering machine, and pager all in one."

Against that backdrop, many investors lost confidence in the long-term future of paging, even as the industry worked furiously on advanced voice and two-way services. Paging stocks began tumbling last summer and most still have not recovered.

Paging carriers were hurt by the collapse of their market valuations, but they have stubbornly continued breathing a year and a half after PCS arrived on the scene. Indeed, as more market data becomes available, carriers are loudly disputing predictions of their imminent demise. In the words of one paging CEO, the industry is "not just [surviving] with broadband PCS in the marketplace, it is thriving."

...Subscriber Growth Retreating Forward?

That statement was made by **Metrocall Inc.** [MCLL] CEO *Bill Collins* in a May 6 conference call with analysts discussing Metrocall's first quarter results. Collins pointed to solid growth in markets where Metrocall faces competition from PCS providers.

In Washington D.C., the most mature PCS market in the nation, Metrocall added 12,500 net new subscribers last quarter, bringing its total to 237,500. That represents annual subscriber growth of about 22 percent, well above the company's overall pro forma growth rate of 16 percent last quarter.

Metrocall also posted strong growth figures in the greater Richmond and Tidewater areas of Virginia, where Collins said **PrimeCo Personal Communications LP** "aggressively initiated and promoted" its PCS service last quarter. In those areas, Metrocall added 9,700 net new subscribers, reaching a total of 200,000 and an annual growth rate above 19 percent.

Churn was 2.7 percent in Washington and 2.5 percent in Richmond and Tidewater, both above the company's overall 2.1 percent churn rate.

...Even PCS Users Want To Keep Their Pagers

As more PCS services roll out, Metrocall's experience may well be repeated in other markets. While PCS, and particularly short message service (SMS), seem to offer the same functionality as a pager, customers appear to see a clear distinction.

Consulting firm **IDC/Link** found strong evidence for this in its fourth annual Wireless Communications User Survey. The survey interviewed 1,000 U.S. households with cellular or PCS service. One survey question asked "If your cellular/PCS phone provided short messaging service, would you stop carrying your pager?" Only 17 percent of respondents said they would, another 17 percent were unsure, and 66 percent said they would not. Clearly, SMS is not seen as a viable replacement for paging at this time.

"We think one of the biggest misconceptions in the wireless industry is that text paging is going to be destroyed by digital cellular and PCS short message services," said IDC/Link analyst *Julie Rietman*. Rietman cited limited SMS coverage areas and the superior battery life of pagers as factors operating in paging's favor.

Credit Markets

Junk-Bond Market Appears to Be Leery Of Debt for Fledgling Wireless Industry

By Suzanne McGee and Anita Raghavan

08/26/96
The Wall Street Journal
Page C1

NEW YORK -- The junk-bond market, which helped finance the growth of the cable-television and cellular-telephone industries, is running into roadblocks as it tries to fill the same role for wireless-telecommunications companies seeking startup capital.

Wireless communications, such as paging and cellular services using new all-digital technology, could give investors the chance to buy a piece of the next MCI or Microsoft, some junk-bond analysts believe. But the fledgling industry still is struggling to get off the ground, as companies that won Federal Communications Commission licenses to build networks secure the funds they need to cover hefty start-up costs.

A crucial part of the financing is the junk-bond market, where as much as $1.8 billion in bonds issued by these newcomers could hit the market over the next six weeks. That is on top of the $8.7 billion in telecommunications-related debt issued publicly and privately, or 22% of all new junk offerings, so far this year, calculates Lehman Brothers Inc.

This wouldn't seem to be a problem for junk-bond investors. Even though the number of new junk-bond issues, defined as bonds rated double B or below by agencies such as Moody's Investors Services Inc., is poised to set a record this year, the yield premium paid by issuers is close to all-time low levels, reflecting the bonds' popularity.

But the telecommunications bonds, particularly those for wireless communications, are the exception. By far the fastest-growing sector of the junk-bond market, they are also the trickiest for investors to understand, involving an array of new technologies that are likely to materialize in the future, rather than today.

"It's a lot easier to figure out if a zipper factory will be running three years from now than try to figure if your company, managers and technology are going to triumph," one strategist says.

Reflecting this uncertainty, at least three issues have been pulled in recent weeks as investors shied away, and underwriters have had to sweeten other offerings to obtain critical financing.

"There's such a supply binge of these 'concept' companies coming down the pike that there's no incentive to buy them when they're first offered," says Harry Resis, who manages $5 billion in high-yield investments for Zurich Kemper Investments Inc. in Chicago. "You just know that the next one coming along will be even cheaper."

The skittishness in the wireless sector could spill over to the broader junk-bond market. "You could have a setback" in the high-yield market, says Mark Patterson, head of leveraged finance at CS First Boston Inc. But any pullback, he says, would be on a "much smaller scale" than in the late '80s when dozens of junk-bond companies spiraled into default and investors were stuck with searing losses.

Last week, Sprint Spectrum L.P., a joint venture of Sprint Corp., Tele-Communications Inc., Comcast Corp. and Cox Communications Inc., raised $523.4 million in a two-part junk-bond offering underwritten by Lehman and Merrill Lynch & Co. Originally proposed as a $650 million issue, the pricing was delayed by a week as investors hemmed and hawed over the deal's provisions. Despite the brand-name parents, many big junk-bond investors said they opted not to buy. Sprint, which has a 40% stake in the venture, stepped in to pick up $100 million of the zero-coupon portion of the offering, the hardest to market in the current environment.

Zero-coupon bonds have been a popular way for wireless companies and other telecommunications concerns to issue debt, allowing them to price the bonds at a discount and defer cash interest payments for several years until their new systems are built and generating cash flow. But these bonds are less attractive to investors, particularly at times of interest-rate turbulence, because they are far more volatile than traditional corporate bonds.

"The zeros have overwhelmed the market, and there's only so much tolerance for this kind of paper," says David Wells, managing director and high-yield bond analyst at Bear, Stearns & Co. "The capital markets right now are working against these guys, and some of the paper of this kind issued in the past has disappointed investors."

Curtis Barrows, who manages the Phoenix High-Yield Fund, added Sprint Spectrum bonds to his portfolio only because he likes Sprint itself, but he plans to shun most other wireless offerings.

"We're essentially being asked to provide what looks like venture capital financing," Mr. Barrows says. "I don't know the upside, I don't know the downside, I don't know how to value it. I don't think I need many in my portfolio."

One reason for Mr. Barrows's unease, he confesses, is that he was burned by an investment in zero-coupon bonds issued by Nextel Communications Inc. in early 1994. Technological glitches temporarily disrupted the company's plan to build an all-digital wireless network and the bonds, issued at par to yield 9.625%, plunged in value, yielding at times more than 15%.

The deluge of new issues has driven prices of many existing high-yield telecommunications bonds sharply lower. Junk-bond traders say, for instance, that Nextel's 2004 zero-coupon issue is trading to yield 14.6%, up from 13.53%. (Bond yields rise as prices fall.) Meanwhile, Metrocall's 10.375% bonds now trade at 77 cents on the dollar, down from 103 in mid-February, and ProNet bonds have fallen to trade at 91 cents on the dollar compared with 111 in mid-February.

As a result, issuers are being forced to overhaul their offerings to make them more alluring. Wireless One Inc., a Baton Rouge, La., wireless cable-television concern, cut the size of its issue to $125 million from $175 million and added warrants to buy shares in the company for a penny each to the bonds. The fact that even the Sprint Spectrum issue didn't go smoothly was widely interpreted as a poor omen for other companies.

"What happens when John Doe's Wireless comes to market with a bond issue, if Sprint stutters a bit?" Mr. Barrows asks.

Some underwriters and investors say it is possible more deals will be yanked, like the $165 million proposed issue by **PCS Development** Corp., an operator of voice-paging systems, or delayed, as in the case of **NextWave** Telecom Inc., which is seeking to issue $400 million in 10-year notes. People familiar with the **PCS Development** issue say it was pulled after investors demanded a higher yield than the company wanted or could afford to pay. While **PCS** , at least, has enough cash on hand to proceed with its operations while waiting for market conditions to improve, dealers warn that won't always be the case.

"The FCC must be wondering whether the companies that bought licenses are able to finance their deals in the current market environment," one Wall Street participant says.

That puts the agency in an awkward position: The high-profile auctions held over the past 18 months to auction off wireless voice and data licenses were touted as an example of government's commitment to capitalism. If the FCC has to restructure payment schedules, or even reauction the franchises if companies aren't able to meet their commitments, that would taint the whole process, Wall Street frets.

At the time many auctions were held last spring, the stock market was booming. Many bidders pushed prices higher, in anticipation of being able to issue not only debt but the first in a string of stock issues. But now stock investors as well are retreating from wireless deals as that market becomes more turbulent.

"They are shying away . . . because it is too speculative," says Tony Ehinger, co-head of stock syndication at CS First Boston. The companies coming to market are viewed as risky bets since they don't have current earnings or cash flow but do have huge capital-spending requirements. And without an equity offering, it is hard to place junk bonds, since bond investors want to see stockholders beneath them in the capital structure of a company.

But not everyone is ready to say the game is over.

"If the wireless communications industry takes off like people think it will, these bonds will work," says Mr. Wells at Bear Stearns. "I'm confident that ultimately we'll fund a lot of successful companies."

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Earnings

METROCALL TRIES TO ASSUAGE ANALYSTS' FEARS ABOUT BROADBAND PCS COMPETITION

Metrocall Inc. [MCLL] this week joined the growing list of paging companies trying to convince financial analysts that the advent of broadband personal communication services (PCS) poses no threat to the traditional paging business.

During a May 6 conference call to discuss first-quarter results with analysts, company executives also discussed accomplishments that have become fashionable among paging carriers this year: adding high-revenue customers, cutting costs, lowering debt and generating free cash flow.

President and CEO *Bill Collins* told analysts that in at least two markets where Metrocall competes with broadband PCS providers, "growth continues to be solid for the company." In Washington, where **Sprint Spectrum** [FON] has offered paging on its broadband PCS network for more than a year, Metrocall added 12,500 net new subscribers last quarter, to reach 237,500. That represents annual subscriber growth of about 22 percent, well above the company's overall pro forma growth rate of 16 percent last quarter. Churn in Washington came in at 2.7 percent, somewhat higher than the 2.1 percent logged by the company overall.

Meanwhile, in the greater Richmond and Tidewater areas of Virginia, Metrocall added 9,700 net subscribers, reaching 200,000. That represents an annual growth rate above 19 percent. Churn there came in at 2.5 percent. **PrimeCo Personal Communications LP** last quarter "aggressively initiated and promoted" its PCS service in greater Richmond and Tidewater, Collins said.

In all three markets, Metrocall is an "established player" with an "established position," Collins said. He added: "We trust this information will put any unrealized fears to rest. [Having heard] this report, hopefully you will realize that paging is not just [surviving] with broadband PCS in the marketplace, it is thriving." Here are other highlights from Metrocall's first-quarter report. The fourth-quarter numbers assume that Metrocall already had closed its acquisition of **A+ Network**.

- Net revenue increased to $60.6 million, compared with $57.0 million for the fourth quarter. That represents a 25 percent annualized growth rate.
- Operating cash flow rose from $15.2 million in the fourth quarter to $16.3 million in the first quarter--a 25 percent annualized growth rate.
- The carrier added 85,213 net new subscribers in the quarter to reach 2,227,564, fifth highest among paging carriers in the United States.

On May 1 **Arch Communications Group** [APGR] began operating all of its units under the name **Arch Paging**. The third-largest paging carrier said the move is designed to give it "significant marketing and communications leverage to sell its services on a national scale."

David M. Toll

Sincerely,

The Editors

David M. Toll, Senior Editor

P.S. Do you have a question or comment for the editor? He wants to hear from you! Call David Toll at 301/340-7788, ext. 2016, or e-mail dtoll@phillips.com.

7

ıandwidth scarcity being what it is in Europe, coupled with regulatory pressure from PYTs, it is hard to see another standard ;uccer ·,."

Unlike ERMES, DECT has gained momentum with more than 7 million units shipped to date, according to the DECT forum. "A significant portion of these units can be upgraded to carry the public, dual-mode GSM short messaging standards," said Richard Gerberands, Ericsson marketing manager. "With public systems being integrated, DECT's a viable public alternative to PHS."

"DECT started succeeding as an alternative to PHS," said Scott Goldman, president, The Goldman Group. "But DECT is primarily a wireless local loop system for business users. It has a long way to go before it reaches PHS' popularity with the general public."

Asia

The PHS effort in Asia is being coordinated by PHS International Limited, a Hong Kong-based joint-venture company bringing together the resources of NTT Group (NTT, NTT DoCoMo), Cable & Wireless, Hong Kong Telecom and Japanese trading company Itochu. The consortium has fared better than NTT's efforts in Europe with public PHS successfully accepted or operating in Hong Kong, Indonesia, Thailand, Australia, the Philippines and Macau.

"Some of this success is smoke," said Gerberands. "DECT has been accepted in as many markets. Other than Thailand, PHS has not taken off in Asia. For example, NTT released a statement that they had successfully allocated spectrum in China. Well, in actuality the Chinese allocated spectrum for TDMA, not PHS. [The Chinese] are actually trying to keep PHS out of China."

The Asian market provides a unique battleground for the proprietary standards. With ample free spectrum space and technology-hungry countries, both DECT and PHS have made strides in the market. Beyond public access, PHS has been accepted in 14 countries for wireless local loop systems and in five countries as a PBX alternative. "DECT's making ground in Asia, too," said Ochsner. "Frequency has already been allocated for DECT in India and the Philippines. DECT will compete. By 2000, we expect 30 million users worldwide."

Only time will tell which standard will be the most successful. In the meanwhile, PHS will have a hard time matching its su· ·s in Japan.

Wall Street Perspective

Jeanine Oburchay is an associate director and paging equity analyst at Bear, Stearns and Company. This column marks the first segment of her regular paging stock performance commentary for Inside Paging.

I probably don't need to tell you that the past 18 months have been just about the most grueling time to be a paging equity research analyst. The Bear, Stearns Paging Index, which includes PageNet, Arch, Mobile Telecommunications (Mtel), MobileMedia, Metrocall, American Paging, ProNet, PageMart and Teletouch, has been down more than 70 percent since the beginning of 1996.

This column is to keep Inside Paging readers apprised of the group's stock price performance and to discuss current influences on the stocks. This issue of Inside Paging, however, calls for a little background on what has contributed to the sector's decline, and some thoughts on expected trends.

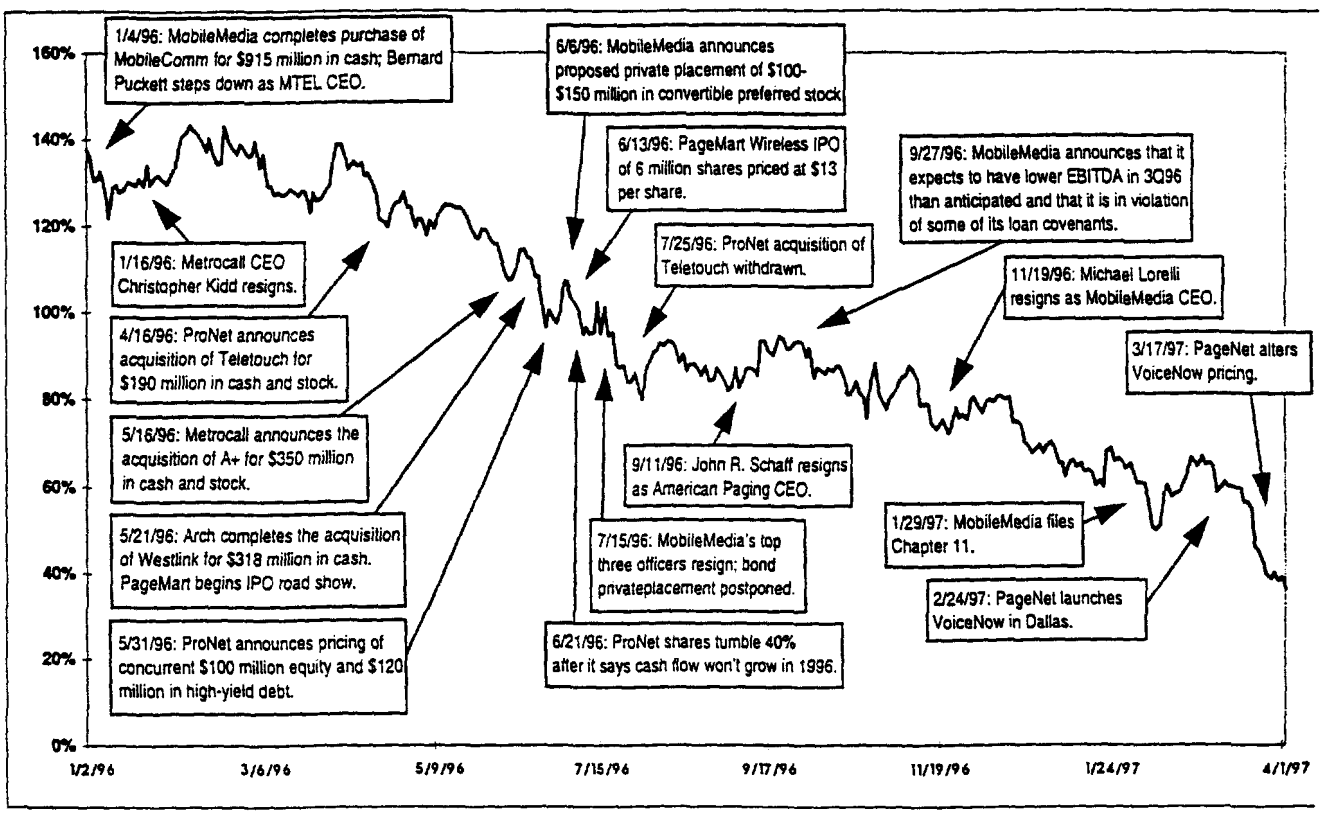
Unfortunately, for the last few quarters paging stocks have not really traded based on the companies' fundamental performance, but rather on negative sentiment and unwarranted worries about the industry's future. As a result, finding the bottom of these stocks has been a challenge.

But sentiment in the last few weeks seems to be turning more positive than we've seen in a long time. Many of the larger paging stocks have begun to show some strength, primarily on the heels of strong first-quarter results from Mobile Telecommunications (Mtel), as well as a bullish strategy outlined by Arch Communications after that company announced its first quarter results on April 30th.

Arch, like many other paging companies, reprioritized its strategic objectives to lower its capital consumption and accelerate the reduction of its leverage ratios. The first quarter results were the first evidence of its ability to begin generating free sh flow from operations.

We believe that this seemingly industry-wide shift in emphasis toward free cash flow and more capital-efficient growth, combined with a growing realization that concerns about the viability industry are unfounded (that broadband PCS does not really become a competitive threat; that PageNet's VoiceNow and Mtel's acknowledgment product roll out successfully; and that Arch and others begin generating free cash from operations) could cause investors to take a fresh look at the paging group. For the longer-term committed investor that wants to play this sector, we can't think of a better time to accumulate strong names in the industry than currently.

Weighted Paging Index Performance (January 1995 to March 1997)



Paging Index includes American Paging, Arch Communications, Metrocall, MobileMedia, MTEL, Paging Network, ProNet and Teletouch.

Source: FactSet Research Systems Inc.; Bear, Stearns & Co. Inc.

Domestic News

Metricom appointed four key executive positions in finance, operations/deployment, manufacturing and administration. Vanessa Wittman was appointed vice president of finance; Jim Nelson was appointed vice president of operations; Bob Bickers was appointed vice president of manufacturing; and Bill Swain was appointed vice president of administration, responsible for the Information Services, Human Resources and Facilities organizations.

Priority Call Management optimized its ORYX platform to meet the growing demands of the wireless marketplace. In support of this, Priority unveiled its short message service (SMS) application, which provides one-number, prepaid calling, and enhanced messaging short messages to digital handsets.

Shares of Arch Communications Group increased more than 17 percent on May 23 following a 21 percent jump on May 22. Analysts say the wireless sector appears to be bouncing back after share prices plunged as much as 70 percent in the last 12 months. Arch Communications' shares (NASDAQ - APGR) closed at $7.50 on May 23, up $1.12 on volume of 338,900. The average daily volume currently is 161,000.

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Donaldson, Lufkin & Jenrette

Donaldson, Lufkin & Jenrette Securities Corporation
200 W. Madison Street, Chicago, IL 60606-3489

Robert A. Moore
Managing Director
Investment Banking
(312) 345-6106

June 9, 1997

Mr. Cecil L. Duffie, Jr.
CONXUS Communications
15 South Main Street
Suite 801
Greenville, South Carolina 29601

Dear Cecil:

At your request we have evaluated the options for the next round of financing that CONXUS will require to proceed with its national build-out. Based on the Company's business plan, there is a capital requirement of approximately $150 million by the end of 1997 to complete the build-out and solidify your competitive position in the marketplace.

One of the options that we have examined is the Company's ability to access the high yield debt market at some point later this year. As you have made considerable progress from last summer's attempted high yield financing, we believe the market may be more accessible to you now as compared to last year. In addition, many other wireless offerings that were anticipated last year and the "overhang" associated with them had negative implications for your offering at that time. As you know, the buyers for those companies' paper are the same buyers for your securities. One issue we all have to monitor closely is the proposed changes in payment schedules for all C-Block winners. If the payments are delayed, one of the concerns the market may have is that capital raised by C-Block winners will be used to build systems and fund start-up losses. In your case, a portion of the capital will be used to repay FCC debt. All other things being equal, the market will view your situation as much less favorable vis-à-vis the other issuers that you will compete with in the capital markets.

We look forward to working with CONXUS on this project. If you have any further questions, please call me.

Sincerely,

Robert A Moore

BOB.DOC

March 26, 1997
New York

J.P. Morgan Securities Inc.
Equity Research
Kurt Abkemeier, CFA (1-212) 648-9468 (abkemeier_kurt@jpmorgan.com)

JPMorgan

Industry Update

Wireless Messaging Industry

Where Does Paging Fit in the Wireless World?

Wireless messaging companies face risks from within the industry over the short term, and from without over the long term, that we do not believe are fully reflected in the stocks. Upon revisiting our industry thesis, we gained a stronger appreciation for the increasing competition within the traditional paging industry, the long-term threat from digital cellular/broadband PCS (BPCS), the lower-quality operating cash flow of paging and the overvaluation of paging relative to cellular. While many argue that paging companies have the potential for high returns, we believe that whatever returns exist are based on optimistic assumptions and are due to high financial leverage, which works both ways.

Our "top-down/bottom-up" subscriber analysis suggests a divergence between total industry expectations and individual company expectations, something which cannot persist. Our analysis indicates that the larger individual operators representing 70% of the industry must "steal" subscribers from the other 30% beginning in 1998 to meet our "conservative" individual company projections. Considering that the other 30% of the industry has never lost subscribers before, we believe it will be difficult for the larger paging companies to simultaneously steal subscribers and maintain stable pricing.

Digital cellular/BPCS, while possibly stimulative over the short term, will become a competitor for subscribers over the long term. We believe that in the next five years digital cellular/BPCS per-minute pricing will fall substantially, first-incoming-minute-free service will become standard, battery life will increase to over one week, and so forth. Also, with 40-50% of the population subscribing to cellular/BPCS service five to 10 years from now and these dynamics in place, where does paging fit in?

Pager leasing inflates operating cash flow margins by 500-1,000 basis points, according to our calculations. We demonstrate that paging and cellular companies follow similar practices with respect to supplying subscriber equipment; however, accounting practices differ such that paging companies capitalize the costs while cellular companies expense costs immediately. As a result, paging companies have lower-quality operating cash flow compared with cellular companies.

Valuations relative to cellular are not attractive. Because both cellular and paging operators are trading at similar multiples of operating cash flow (EBITDA) and paging has lower-quality operating cash flow because of pager leasing, we believe paging operators are overvalued relative to cellular operators.

The **Telecommunications - Wireless Services Equity Research group** recently published the following reports:

lmer Wireless (2/28)
United States Cellular (2/28)

Telecommunications - Wireless Services Equity Research:

Kurt Abkemeier, CFA
(1-212) 648-9468
Laura Baldwin
(1-212) 648-6271
Michael Rollins
(1-212) 648-6294

Table 1: J.P. Morgan Wireless Messaging Coverage

Company	Ticker	Rating	3/25/97 Price	Firm Value	1997E OCF	FV/ OCF	'97-00 CAGR	97 Mult. to LTGR
Arch Communications	APGR	MP	$5.00	$1,077.5	$136.6	7.9	16.1%	49.0%
MobileMedia	MBLM	MP	$0.88	$1,189.1	$136.1	8.7	15.8%	55.3%
Mtel	MTEL	MP	$6.25	$1,147.8	$17.4	65.9	115.3%	57.2%
PageMart	PMWI	L-T Buy	$4.75	$545.9	$(6.4)	NM	NM	NM
PageNet	PAGE	MP	$8.63	$2,810.6	$270.2	10.4	30.3%	34.4%

Source: J.P. Morgan Securities Inc. estimates. Note: FV/OCF reflects equity market capitalization and net debt to operating cash flow. JPMS Rating System: B=Buy, L-T Buy=Long-Term Buy, MP=Market Performer; and UP=Underperformer.

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CHARTS

INVESTMENT THESIS

The wireless industry is in the midst of significant change that will require all of the players to consider their shorter- and longer-term competitive positions. While the wireless messaging industry has shorter-term growth ahead of it, the degree of longer-term growth is at risk because of increased competition from within the wireless messaging industry and from without, in the form of digital cellular/BPCS. Unexpected competition in a commodity-like business, such as paging, with significant fixed costs and little profitability without significant volume, could be the backdrop for uneconomic returns for investors.

Positives

Subscriber Growth to Remain Strong Over Shorter Term
Over the short term, the wireless messaging industry still has room for growth. Assuming that digital cellular/BPCS has only a mild effect on wireless messaging, our projections indicate that wireless messaging subscribers can increase from 34.6 million subscribers in 1995 to 77.4 million by 2000. Although we expect net adds from traditional paging to peak in late 1997 or early 1998, we anticipate narrowband PCS to pick up some of the slack. Even though digital cellular/BPCS will likely be a damper over the longer term, we see an opportunity over the shorter term for digital cellular/BPCS to actually have a stimulative effect as awareness of wireless, in general, is heightened.

Wireless Messaging Serves Different Need Than Cellular/Broadband PCS
Wireless messaging is typically used by someone at a fixed location to contact someone who is mobile, while cellular/BPCS is primarily used by someone who is mobile to contact someone at a particular location. As a result, there is a great overlap of cellular and paging users because paging compensates for the weaknesses of analog cellular inbound capabilities. We believe that paging's inbound capabilities will differentiate paging from cellular for the next few years, but over the longer term, digital cellular/BPCS should gain improved inbound capabilities that narrow the relative attractiveness of paging over cellular.

Ability to Mass-Broadcast Information Services
Because pagers are tuned to a specific frequency, it is relatively easy to broadcast the same messages to all subscribers. Distribution of common messages, such as news stories, is both simple and cost-effective. We see this as a potential competitive advantage for paging operators to exploit which can help drive demand for alphanumeric pagers and increase average revenue per unit (ARPU). Over the longer term, digital cellular/BPCS will have the capability and capacity to be able to provide similar services, as well as more customized solutions.

Lower Price Point Than Real-Time Wireless Voice Telephony
Wireless messaging monthly recurring charges, depending on the type of service, typically cost one-fourth that of cellular services. As a result, wireless messaging attracts a different segment of the market that is unwilling or unable to pay roughly $50 per month for cellular.

Wireless Messaging Operators Tend to Have a Nationwide Footprint
One of wireless messaging's differentiating factors relative to BPCS is that most of the large operators can provide nationwide seamless coverage using one technology. Of those in the broadband world, only Sprint PCS (FON/$47.63/Buy) and Nextel (NXTL/$13.63/Buy) can boast of having seamless nationwide resources, but of course, they are not yet fully built out yet. While other cellular/BPCS operators have large footprints, achieving nationwide coverage is only possible through linking networks that do not necessarily allow for the roaming of features. Over the longer term, these issues will likely be worked out among the cellular/BPCS operators.

Risks

See page 19 for our "top-down/bottom-up" analysis

Entire Industry and Individual Company Subscriber Projections Do Not Appear to Add Up
Our "liberal" industry projections and "conservative" individual company subscriber projections indicate that there is not enough room for all companies to meet subscriber growth expectations over the longer term. To meet our industry projections, the larger individual companies representing 70% of the industry must steal from the subscriber base of the other 30% of the industry. The smaller operators in the industry have never collectively lost subscribers and have, in fact, gained subscribers every year. These smaller operators appear to have survived the fierce pricing war of 1996, and we suspect that they will not cede subscribers to the larger players without a bloody fight. For individual companies to meet our subscriber projections, we believe the entire industry must ultimately grow to a higher level beyond our expectations and those of the Street.

See page 29 for a discussion of digital cellular/BPCS

Longer-Term Risk of Competition From Digital Cellular/Broadband PCS
While we do not believe that digital cellular/BPCS will be able to capture successfully a significant portion of the wireless messaging market over the shorter term, we do believe the risk exists that cellular/BPCS can do so over the longer term. We believe that paging companies must devise strategies to differentiate their services from those of digital cellular/BPCS.

Technical Advantages of Wireless Messaging Diminish as Cellular/BPCS Evolves
To date, cellular has been primarily an outbound communications device, compared with paging, which is an inbound communications device. Historically, paging has been a good complement to cellular because it compensated for cellular's weak inbound capabilities. However, cellular/BPCS is evolving in such a way that it can offer nearly all of the same features as paging. Evidence from Scandinavian countries that already use PCS technologies supports this thesis, with subscribers leaving their phones turned on most of the time to receive inbound calls or messages. In the United States, the trend is for cellular/BPCS operators to offer the first incoming minute free or at a reduced rate to incent the subscriber to leave the phone turned on, something which decreases the need for pagers.

Price Advantage of Paging Relative to Cellular/Broadband PCS to Diminish
One of paging's advantages today over cellular is that it costs about $10 per month compared with about $50 for cellular/BPCS. Market segmentation based on those who cannot afford cellular probably accounts for some of those who subscribe to paging, but longer term, we see this pricing advantage diminishing. We expect cellular/BPCS per minute pricing to drop by more than 50% over the next five to 10 years, while paging pricing is expected to decline only modestly. We expect this pricing advantage to narrow and for some paging subscribers to cross the chasm into the wireless voice telephony world. In fact, most analysts believe that cellular/PCS will achieve penetration between 40-50% within 10 years, which would represent about 70% of those between the ages of 15 and 60. In light of such high penetration rates for cellular/PCS, significantly lower per minute pricing, significantly improved battery life and more robust networks, where does wireless messaging fit in?

Pricing Pressure Could Hurt Margins
Factors such as a slowing of subscriber growth or exacerbation of competition could drive ARPU down and hurt operating cash flow margins. Since paging operators have relatively large investments in infrastructure that can support more subscribers than are signed up today, their inclination is often to sell airtime at the marginal cost of providing service if excess capacity exists.

: page 44 for a discussion of the effect of resellers on paging operators

Reliance on Resellers May Adversely Impact Pricing
Resellers were certainly price makers, not price takers, during 1996. Because many paging operators do not have enough of their own distribution, they must rely on resellers to acquire new subscribers. Resellers have recently received very low pricing (between $1 and $3 per month) for numeric service, as paging operators competed for the business of resellers. Resellers have come to be in this envious position because this is largely a commodity business with little, if any, differentiation between service providers. With 90% of all subscribers using numeric paging, this situation may persist. We believe that alphanumeric services can offer more differentiation than numeric paging, but with alphanumeric paging there still is not a large degree of differentiation. Until there is considerably more differentiation between operators, resellers are likely to have the upper hand when it comes to pricing.

See page 36 for our analysis of the effect of pager leasing

Pager Leasing Obscures the Operating Results of Paging Companies
Our calculations suggest that the accounting convention of capitalizing leased pagers distorts operating cash flow (EBITDA) margins by 500-1,000 basis points. Most paging companies report operating cash flow margins of 25-37%, but we believe "truer" operating cash flow margins lie somewhere in the 18-30% range. Also, some of the operating cash flow margin expansion over the last two years for some paging companies may stem more from the leasing of pagers than the underlying performance of the primary service line of business.

See page 11 for our trading comparable analysis and discussion of paging and ...llular valuations

Paging Valuations Appear Expensive Relative to Cellular Valuations
With paging equity values down as far as they have been over the last 18 months, they must certainly be cheap, right? We do not believe they are cheap yet, especially when compared with cellular operating cash flow trading multiples. Nearly all paging companies have adjusted traditional paging trading valuations of about eight times 1997 operating cash flow. This compares with adjusted cellular trading valuations for most rural cellular operators, which also trade at about eight times 1997 operating cash flow. In addition, these cellular operators have higher and expanding operating cash flow margins of 35-45%, positive net income, and the most compelling competitive profile in the cellular industry. Especially because of the effect of pager leasing, we firmly believe that adjusted traditional paging trading valuations should trade at a discount to adjusted cellular trading valuations.

Perception of Digital Cellular/BPCS Risks Likely to Limit Valuations
Whether or not the threat from digital cellular/BPCS is actually real, the **perception** is that it is real. Until that perception changes, paging stock valuations are unlikely to increase significantly without any catalysts to change the minds of investors. From our perspective, we do see longer-term risks from BPCS. In addition, we believe the perception that digital cellular/BPCS is a threat will continue to hang over the stocks leading us to believe that there will not be much upside in the stocks over the next 12 months.

See page 43 for a discussion of financial leverage

Investors May Be Unwilling to Finance More Capital Requirements
Times have changed for the wireless messaging industry, and so has the ability of paging operators to finance the growth of their businesses. After the experience of MobileMedia, banks and the debt markets are likely to view paging financings with a healthy dose of skepticism. Although the availability of capital has diminished, and may well persist for some time, this should at least have the positive effect of encouraging companies to pursue rational and profitable strategies that produce free cash flow.